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New data on the millipede genus *Altajosoma* Gulička, 1972 from southwestern Siberia, Russia (Diplopoda: Chordeumatida: Diplomaragnidae)

Новые сведения о двупарноногих многоножках рода *Altajosoma* Gulička, 1972 с юга Западной Сибири, Россия (Diplopoda: Chordeumatida: Diplomaragnidae)

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KEY WORDS: Diplopoda, Diplomaragnidae, *Altajosoma*, taxonomy, fauna, new records, Siberia, Russia.

КЛЮЧЕВЫЕ СЛОВА: Diplopoda, Diplomaragnidae, *Altajosoma*, таксономия, фауна, новые находки, Сибирь, Россия.

ABSTRACT. Based on fresh and re-examined material from SW Siberia, the distributions of seven diplomaragnid millipede species have been supplemented, refined and updated. The following few taxonomic changes are proposed: *Altajosoma bakurovi* (Shear, 1990), stat. revalid. ex *A. bakurovi bakurovi* (Shear, 1990), *Altajosoma bakurovi longiprocessum* Mikhaljova, 2000 = *A. longiprocessum* Mikhaljova, 2000, stat.n. *A. bakurovi* (Shear, 1990) is recorded from the Republic of Khakassia for the first time, *A. corniferum* Mikhaljova, Nefediev et Nefedieva, 2008 is new to the Altai Province. A description of the posterior gonopods of *A. deplanatum* (Stuxberg, 1876), as well as the diagnosis of the genus in general are supplemented. The distributions of all *Altajosoma* species encountered are mapped.

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РЕЗЮМЕ. По новому и повторно изученному коллекционному материалу с юга Западной Сибири дополнены, уточнены и обновлены области распространения для семи видов диплопод-нитеносцев. Предложены несколько таксономических изменений: *Altajosoma bakurovi* (Shear, 1990), stat. revalid. ex *A. bakurovi bakurovi* (Shear, 1990), *Altajosoma bakurovi longiprocessum* Mikhaljova, 2000 = *A. longiprocessum* Mikhaljova, 2000, stat.n. *A. bakurovi* (Shear, 1990) впервые отмечен в Республике Хакасия, *A. corniferum* Mikhaljova, Nefediev et Nefedieva, 2008 оказался новым для Алтайского края. Дополнено описание задних гоноподов *A. deplanatum* (Stuxberg, 1876), а также диагноз рода в целом. Для всех видов *Altajosoma* выполнено картирование ареалов.

Introduction

The millipede genus *Altajosoma* Gulička, 1972 is currently known to be represented by 12 species, which mainly occur in the south of western and central Siberia, as well as Eastern Kazakhstan [Mikhaljova, 2017, 2019]. Only one species, *A. golovatchi* Shear, 1990, which inhabits the southern part of the Krasnoyarsk Province, penetrates beyond the Urals and shows remarkable disjunct outposts in the southern Urals and Cis-Ural region.

The type material of both subspecies of *A. bakurovi* (Shear, 1990), now deposited in the collections of the Zoological Museum of the Lomonosov Moscow State University, Moscow (ZMUM) and the Federal Scientific Center of the East Asia Terrestrial Biodiversity, Far Eastern Branch of the Russian Academy of Sciences, Vladivostok (FSCB), both Russia, has been re-examined.

SEM micrograph was prepared at the Laboratory of Phylogeny and Faunogenesis, Institute of Systematics and Ecology of Animals, Siberian Branch of the Russian Academy of Sciences, Novosibirsk, Russia (ISEA), using a Hitachi TM-1000 scanning electron microscope. The distribution maps were composed using QGIS 3.4.4.

The material treated herein has been deposited in the collection of the Altai State University, Barnaul, Russia (ASU). Literature references to the species concern their distribution areas. s.l. — same locality; p.t. — pitfall traps.

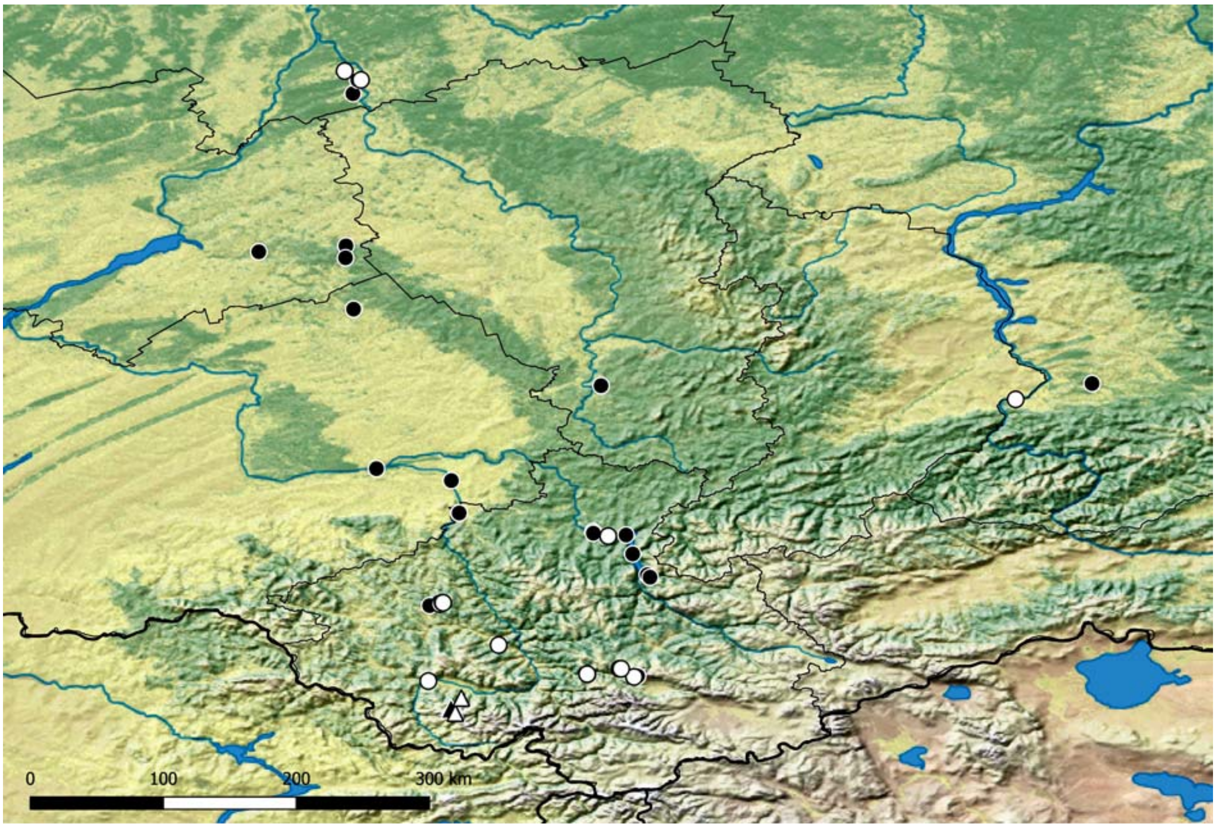


Fig. 1. Distribution of *Altajosoma* species: *bakurovi* (Shear, 1990) (circle) and *katunicum* Mikhaljova, 2000 (triangle). Previously known localities marked in black, new records given in white.

Рис. 1. Распространение видов *Altajosoma*: *bakurovi* (Shear, 1990) (круг) и *katunicum* Mikhaljova, 2000 (треугольник). Черным отмечены ранее известные места находок, новые находки отмечены белым.

Taxonomic part

Class Diplopoda

Family DIPLOMARAGNIDAE

Altajosoma bakurovi (Shear, 1990)
Fig. 1.

Diplomaragna bakurovi Shear, 1990: 22, 23: figs.

Diplomaragna bakurovi — Mikhaljova, 1993: 18; Nefediev, Nefedieva, 2008a: 117.

Altajosoma bakurovi — Mikhaljova, 2000: 161, figs; Mikhaljova, Golovatch, 2001: 108; Nefediev, 2002a: 30; Mikhaljova, Nefediev, 2003: 86; Nefediev, Nefedieva, 2005: 177.

Altajosoma bakurovi bakurovi — Mikhaljova, 2000: 161, figs; 2004: 178, figs, 116: map; 2017: 218, figs, 219: map; Mikhaljova *et al*., 2008: 51; Nefediev, Nefedieva, 2006: 98; 2007b: 161; 2007c: 99; 2008b: 62; 2011: 100; 2012a: 47; 2012b: 51; 2013: 87; 2017: 294; Nefedieva, Nefediev, 2008: 123; Nefedieva *et al*., 2014: 65; 2015: 147.

non *Altajosoma bakurovi bakurovi* — Nefediev, Nefedieva, 2007a: 139.

MATERIAL EXAMINED. 5 juv., Russia, **Tomsk Area**, Tomsk District, near Zorkaltsevo, 56.521326°N, 84.733903°E, *Pinus sibirica* forest, soil samples, 24.VII.2001; 1 juv., s.l., soil samples, 24.VIII.2001; 9 juv., same Area and District, near Kislovka, 56.430654°N, 84.900971°E, *Populus tremula* forest, soil samples, 10–11.VI.2001; 1 ♂, 1 ♀, 5 juv., s.l., soil samples, 18–22.VII.2001; 6 ♂♂, 12 ♀♀, 1 fragm., s.l., p.t., 6–26.VIII.2001; 3 ♂♂, 1 ♀, 1 juv., s.l., soil samples, 26.VIII.2001; 41 ♂♂, 23 ♀♀, 3 fragm., s.l., p.t., 26.VIII.–18.IX.2001; 4 juv., s.l., 9.X.2001, all leg. P.S. Nefediev, J.S. Nefedieva; 1 ♂, Russia, **Republic of Khakassia**, Altai District, Ochurskii Bor, 53°09′33.5″N, 91°36′ 35.9″E, *Pinus sylvestris* forest, 30.IX.2008, leg. D.I. Pogrebnyak; 2 ♂♂, 3 ♀♀, 1 juv., Russia, **Republic of Altai**, Ongudai District, old Chike-Taman Pass, 50.642909°N, 86.311878°E, *Caragana* thicket, 1275 m a.s.l., 5.VIII.2007, leg. P.S. Nefediev, J.S. Nefedieva; 1 ♂, 1 ♀, same Republic, Turochak District, Altai State Nature Reserve, NW of Lake Teletskoye, cordon Baigazan, 51°45′34.1″N, 87°26′03.6″E, *Padus avium* forest, 490 m a.s.l., 1.X.2013; 2 ♂♂, 1 ♀, near s.l., 51°45′32.7″N, 87°26′05.8″E, *Padus avium* forest, ca 480 m a.s.l., 1.X.2013, all leg. M.B. Sakhnevich; 1 ♂, same Republic, Ulagan District, Aigulakskii Mt. Range, near source of Sardyma River, 50°24′N, 87°33′E, rocky alpine meadow with rock screes, 2400–2500 m a.s.l., 29.VII.2016, leg. A.A. Fomichev; 1 ♂, 1 ♀, 1 subadult ♂, 1 juv., near s.l., 50°24′N, 87°34′E, alpine meadow, under logs, 1880 m a.s.l., 29.VII.2016, leg. Yu.V. Dyachkov; 1 ♂, same Republic, same District, Kuraiskii Mt. Range, watershed of Korumduairy River and Yarlyamry River, 50°19′N, 87°42′E, *Larix sibirica* forest, moss rocky slope, 2000–2150 m a.s.l., 7.VIII.2016, leg. A.A. Fomichev; 5 ♂♂, 4 ♀♀, 1 juv., same Republic, Ust-Koksa District, 0.5 km W of Ust-Koksa, 50°16′27.74″N, 85°35′ 29.21″E, *Betula* forest, under stones, 980 m a.s.l., 14–15.VIII.2016, leg. Yu.V. Dyachkov; 3 ♂♂, 1 ♀, same Republic, Ongudai District, 7.5 air-km ENE of Seminskii Pass, Seminskii Mt. Range, environs of Mt Sarlyk, 51.06257°N, 85. 70872°E, alpine meadow with sparse *Larix sibirica*, 1970 m a.s.l., 21.VII.2018, leg. P.S. Nefediev; 1 ♂, 2 juv., near s.l., 51°03.964′N, 85°42.421′E, forest

patch with *Pinus sibirica* and *Picea obovata*, small gaps, rocky, *Betula rotundifolia*, ca 1990 m a.s.l., sifting leaf litter and moss over 70 m, 21.VII.2018, leg. V.I. Gusarov, P.S. Nefediev; 8 juv., same Republic and District, 8 air-km ENE of Seminskii Pass, Seminskii Mt. Range, environs of Mt Sarlyk, 51°04.031′N, 85°42.779′E, alpine meadow with *Betula rotundifolia* and *Salix* thicket, sparse trees of *Pinus sibirica*, *Picea obovata* and *Larix sibirica*, ca 2065 m a.s.l., sifting leaf litter and moss over 70 m, 21.VII.2018, leg. V.I. Gusarov, M.F. Maurstad, V. Løveng; 6 ♂♂, 2 ♀♀, 1 subadult ♂, same Republic and District, 10 air-km NE of Seminskii Pass, Seminskii Mt. Range, summit of Mt Sarlyk, 51.077217°N, 85.735567°E, rocky desert with patches of mountain tundra, under stones, 2505 m a.s.l., 21.VII.2018; 9 ♂♂, 2 ♀♀, near s.l., E slope of Mt Sarlyk, 51.0774112°N, 85.738094°E, mountain tundra with rocky screes, under stones, 2400 m a.s.l., 21.VII.2018; 1 ♂, 2 ♀♀, same Republic and District, 10.5 air-km NE of Seminskii Pass, Seminskii Mt. Range, foot of Mt Sarlyk, Lakes Tuyukskiye, 51.075783°N, 85.742667°E, mountain tundra, under stones, ca 2230 m a.s.l., 21.VII.2018; 1 ♂, 1 ♀, same Republic and District, 20 air-km W of Chibit, valley of Chuya River, near Shirlak Waterfall, right bank of Chuya River, 50.34358°N, 87.22225°E, *Betula* forest with *Larix sibirica*, *Caragana*, small grass vegetation and green mosses, ca 1015 m a.s.l., 23.VII.2018; 3 ♂♂, 2 ♀♀, same Republic and District, 20 air-km W of Chibit, valley of Chuya River, environs of Shirlak Waterfall, along Tektu River down the waterfall, 50.34542°N, 87.21915°E, *Betula* forest with *Alnus*, *Lonicera* and tall grass vegetation, ca 1080 m a.s.l., 23.VII.2018, all leg. P.S. Nefediev; 2 ♂♂, 1 ♀, near s.l., 50°20.690′N, 87°13.213′E, *Betula* forest along Tektu River, sifting leaf litter over 40 m, ca 1080 m a.s.l., 23.VII.2018, leg. V.I. Gusarov, M.F. Maurstad, V. Løveng.

DISTRIBUTION. This species is rather widespread in southwestern Siberia (E districts of the Novosibirsk Area, Altai Province and Republic of Khakassia, S districts of the Kemerovo and Tomsk areas, widely in the Republic of Altai) and south of central Siberia (S districts of the Krasnoyarsk Province) (Fig. 1).

REMARKS. Originally described in *Diplomaragna* Attems, 1907 from the Novosibirsk Area (see Shear [1990]), this species was later transferred to *Altajosoma*, with the designation of the nominotypical subspecies, *Altajosoma bakurovi bakurovi*, whereas the second subspecies, *A. b. longiprocessum* Mikhaljova, 2000, was found in the Sayano-Shushenskii Nature Reserve, S part of the Krasnoyarsk Province (see Mikhaljova [2000]). The *A. b. bakurovi* — *A. b. longiprocessum* pair of subspecies remains the sole in *Altajosoma*. A restudy of the type material of both subspecies shows that they actually belong to different species. *Altajosoma bakurovi* is new to be reported from the Republic of Khakassia, as well as from its southern range in the Republic of Altai.

Altajosoma baltyrgan Mikhaljova, 2013
Fig. 2.

Altajosoma katunicum pro parte — Mikhaljova *et al*., 2008: 52 Nefedieva, Nefediev, 2008: 123; Nefediev, Nefedieva, 2013: 87; Nefedieva *et al*., 2014: 65; 2015: 149.

Altajosoma baltyrgan Mikhaljova, 2013: 2, 3–4, 6: figs.

NEW MATERIAL EXAMINED. 1 ♂, 1 ♀, Russia, **Republic of Altai**, Turochak District, Altai State Nature Reserve, NW of Lake Teletskoye, cordon Baigazan, 51°45′35.0″N, 87°26′02.3″E, *Salix caprea* forest, ca 480 m a.s.l., 30.IX.2013; 1 ♂, near s.l., 51°45′35.0″N, 87°25′42.2″E, *Padus avium* forest, ca 470 m a.s.l., 3.X.2013, all leg. M.B. Sakhnevich.

MATERIAL RE-EXAMINED (specimens previously identified as *A. katunicum* Mikhaljova, 2000 and published by Mikhaljova *et al*. [2008]). 1 ♂, Russia, **Republic of Altai**, Ulagan District, Altai State Nature Reserve, S of Lake Teletskoye, cordon Chiri, mouth of Chiri River, 51.363121°N, 87.835473°E, *Betula pendula* forest, 465 m a.s.l., 11–12.VIII.2005; 1 ♂, same Republic, Turochak District, Altai State Nature Reserve, N of Lake Teletskoye, Yailyu, 51.769912°N, 87.617391°E, *Pinus sylvestris* forest with *Betula pendula*, broad gully, 460 m a.s.l., 19.VIII.2005, all leg. P.S. Nefediev, J.S. Nefedieva.

DISTRIBUTION. This species has previously been known only from its type locality (near Mt Baltyrgan, Choya District, Republic of Altai). Now it is recorded from the Altai State Nature Reserve in the environs of Lake Teletskoye (Fig. 2).

REMARKS. A restudy of two ♂♂ from near cordon Chiri and at Yailyu in the environs of Lake Teletskoye, previously identified as *A. katunicum* by Mikhaljova *et al*. [2008], shows that both of them actually belong to *A. baltyrgan*. This species is recorded from outside its *terra typica* for the first time.

Altajosoma corniferum Mikhaljova, Nefediev et Nefedieva, 2008
Fig. 3.

Altajosoma corniferum Mikhaljova, Nefediev et Nefedieva, 2008: 49, 50: figs.

Altajosoma corniferum — Nefediev, Nefedieva, 2008: 62.

MATERIAL EXAMINED. 2 ♂♂, Russia, **Altai Province**, Krasnoshchiokovo District, Tigirek State Nature Reserve, buffer zone, 51.180883°N, 82.973475°E, *Salix* thicket, ca 800 m a.s.l., hand sampling, 17.VII.2014; 4 ♂♂, 1 ♀, same Province and District, Tigirek State Nature Reserve, Khankhara Site, ca 6 km NW of Tigirek, 51.184260°N, 82.973277°E, *Betula pendula* and *Salix* forest, 675–815 m a.s.l., soil samples, 18.VII.2014, all leg. Yu.V. Dyachkov; 1 ♂, same Province, Zmeinogorsk District, near former Beloretsk, Tigirek State Nature Reserve, Beloretsk Site, left bank of Belaya River, right bank of Glukharikha River near its mouth, middle part of W slope, 51°00′15.31″N, 82°45′47.04″E, glade with tall grass vegetation in chern taiga, 540 m a.s.l., p.t., 20–28.VIII.2014; 2 ♂♂, near same locality, lower part of W slope, 51°00′14.00″N, 82°45′45.00″E, chern taiga, ca 510 m a.s.l., p.t., 20–28.VIII.2014; 1 ♂, near same locality, upper and middle parts of W slope, 51°00′13.60″N, 82°45′47.80″E, chern taiga, 550 m a.s.l., p.t., 20–28.VIII.2014; 1 ♂, same Province, Krasnoshchiokovo District, near Tigirek, Tigirek State Nature Reserve, buffer zone, left bank of Malyi Tigirek River, near mouth of Voskresenka Channel, bottom of river valley, 51°08′30.50″N, 83°02′ 43.40″E, *Betula pendula* forest, 500 m a.s.l., p.t., 29.VIII.–8.IX.2014; 1 ♀, same Province and District, near Tigirek, Tigirek State Nature Reserve, buffer zone, right bank of Malyi Tigirek River, bottom of river valley, 51°08′45.10″N, 83°02′34.00″E, *Betula pendula* forest, 480 m a.s.l., p.t., 29.VIII.–8.IX.2014, all leg. T.M. Krugova, O.P. Antonova; 2 ♂♂, 1 ♀, same Province and District, Tigirek State Nature Reserve, buffer zone, Dragunskii Brook, 51.177247°N, 82.970800°E, *Betula pendula* forest with *Salix* and *Ribes nigrum*, 770 m a.s.l., hand sampling, in litter, 17–18.VIII.2016, leg. P.S. Nefediev, J.S. Nefedieva; 1 ♂, 1 ♀, 1 subadult ♂, same Province and District, Tigirek State Nature Reserve, Khankhara Site, top of N slope, 51.189621°N, 82.953090°E, *Betula pendula*, *Larix sibirica* and *Abies sibirica* forest with *Sorbus sibirica*, 925 m a.s.l., hand sampling, in litter, 18.VIII.2016, leg. P.S. Nefediev; 1 ♂, 1 ♀, same Province and District, Tigirek State Nature Reserve, Khankhara Site, watershed of Khankhara River and Dragunskii Brook, 51°11′31.75″N, 82°58′22.79″E, *Betula pendula* and *Larix sibirica* forest with *Rubus idaeus*, *Salix caprea*, *Ribes spicatum*, upper and middle parts of N slope, 850 m a.s.l., soil samples, 18.VIII.2016, leg. T.M. Krugova, L.Yu. Gruntova, V.V. Zelenskii, K.V. Smirnova, A.E. Pupkova, M.N. Terioshkina, R.V. Shcherbakova.

DISTRIBUTION. This species has previously been known only from its *terra typica* (Seminskii Pass, Ongudai District, Republic of Altai), presently being reported from the S districts of the Altai Province in the Tigirek State Nature Reserve (Fig. 3).

REMARKS. This species is recorded from outside its type locality for the first time.

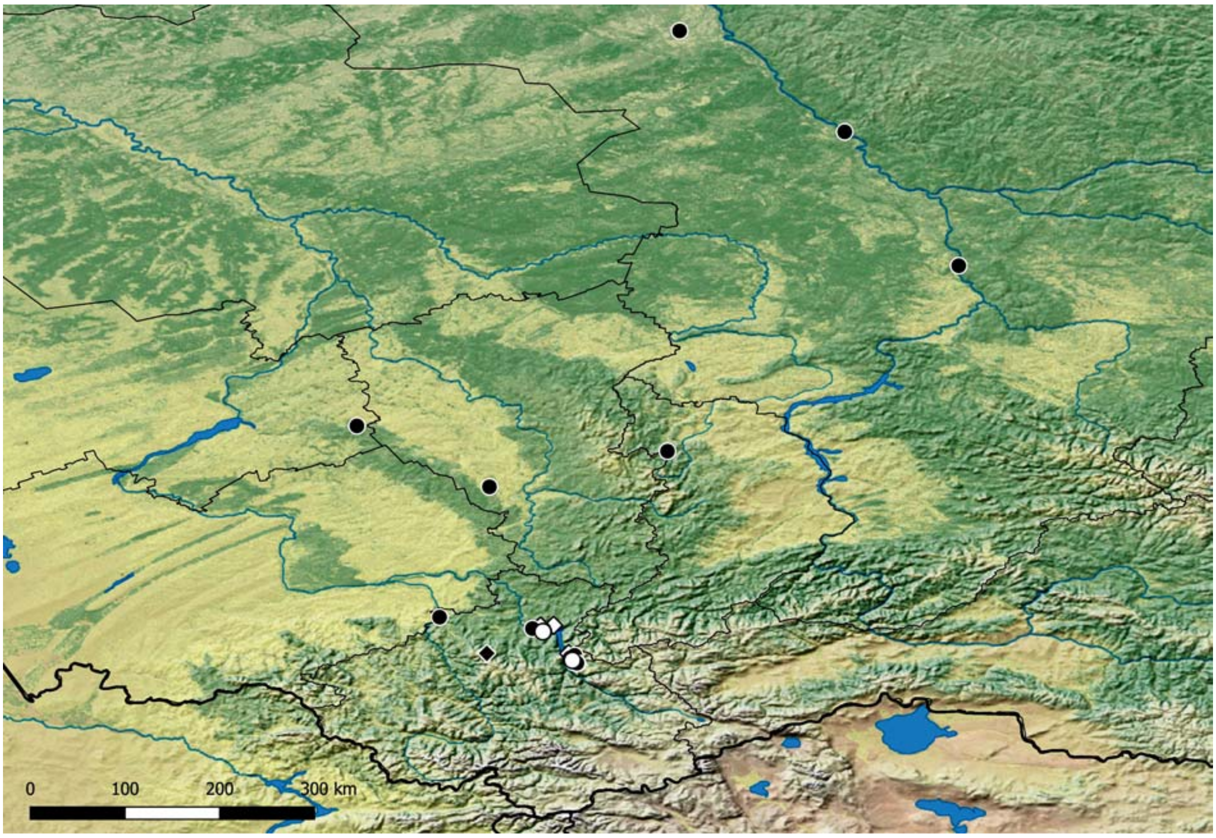
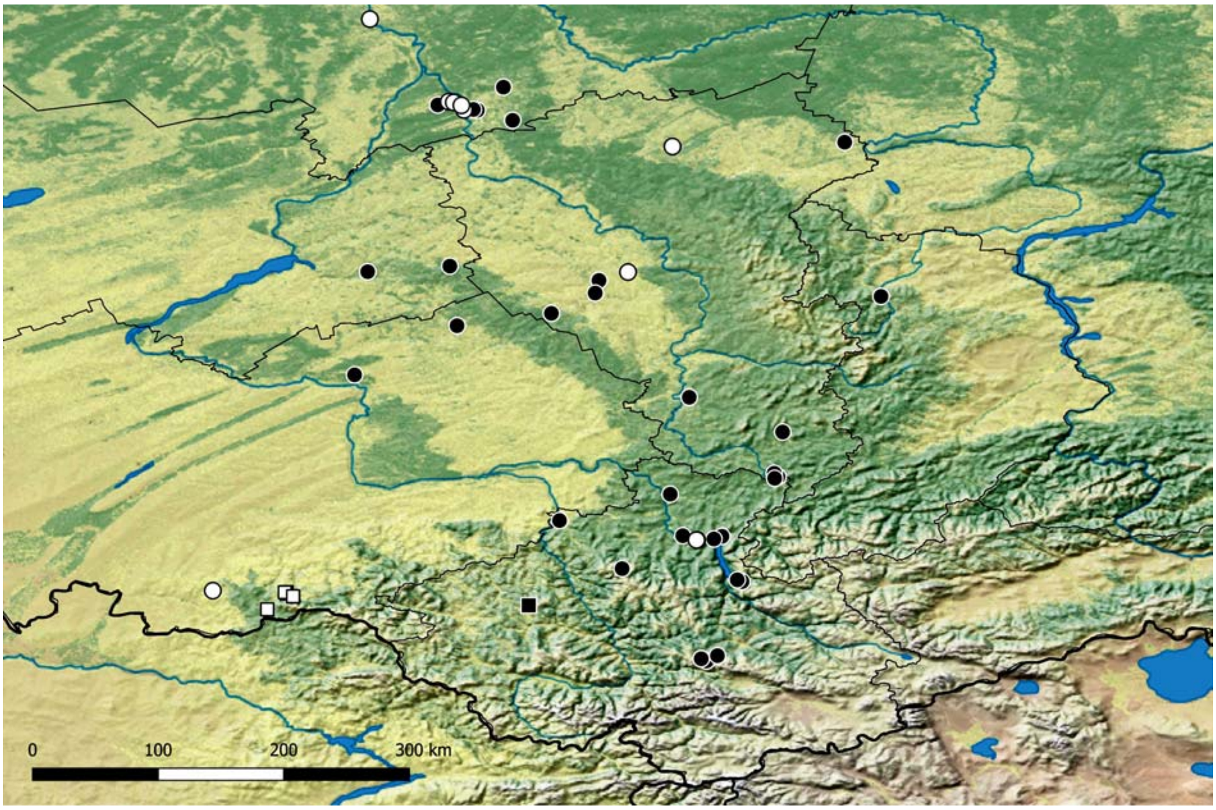
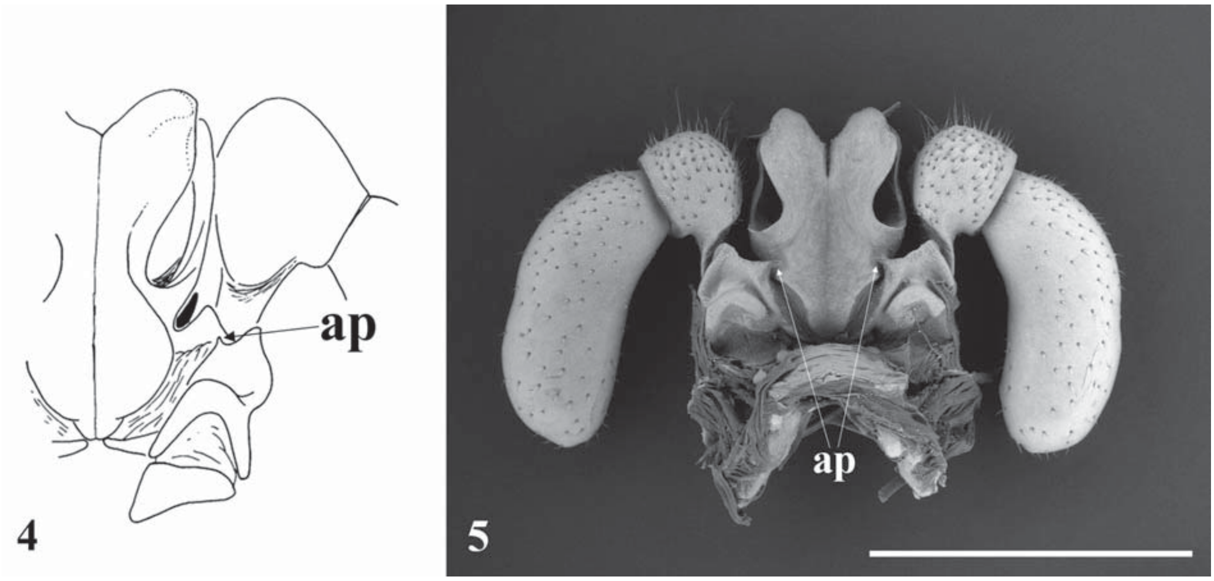


Fig. 2. Distribution of *Altajosoma* species: *baltyrgan* Mikhaljova, 2013 (diamond) and *kemerovo* (Shear, 1990) (circle). Previously known localities marked in black, new records given in white.

Рис. 2. Распространение видов *Altajosoma*: *baltyrgan* Mikhaljova, 2013 (ромб) и *kemerovo* (Shear, 1990) (круг). Черным отмечены ранее известные места находок, новые находки отмечены белым.





Figs 4–5. *Altajosoma deplanatum* (Stuxberg, 1876), male. 4, 5 — gonopods, oral view (after Shear [1990]), with some changes, without scale (4)); Republic of Altai, near cordon Baigazan (5). Scale bar: 1 mm. Designations explained in text.

Рис. 4–5. *Altajosoma deplanatum* (Stuxberg, 1876), самец. 4, 5 — гоноподы, вид спереди (по Shear [1990] с некоторыми изменениями, без масштаба (4)); Республика Алтай, около кордона Байгазан (5). Масштаб: 1 мм. Объяснение обозначений дано в тексте.

Altajosoma deplanatum (Stuxberg, 1876) Fig. 3–5.

Craspedosoma deplanatum Stuxberg, 1876a: 36, figs.

Craspedosoma deplanatum — Stuxberg, 1876b: 317; Attems, 1904: 49; Lokšina, Golovatch, 1979: 383; Nefediev, Nefedieva, 2008a: 117.

Altajosoma pinetorum Gulička, 1972: 37, figs.

Altajosoma pinetorum — Lokšina, Golovatch, 1979: 382; Shelley *et al*., 2000: 62; Nefediev, Nefedieva, 2008a: 117.

Diplomaragna deplanata — Shear, 1990: 19, 20: figs; Mikhaljova, 1993: 22.

Diplomaragna pinetorum — Shear, 1990: 38; Mikhaljova, 1993: 25.

Altajosoma deplanatum — Mikhaljova, 2000: 160, figs; 2004: 170, 171: figs, 162: map; 2013: 7; 2016: 12; 2017: 207, figs, 199: map; Mikhaljova, Golovatch, 2001: 108; Nefediev, 2002a: 30; 2002b: 35; Mikhaljova, Nefediev, 2003: 86; Nefediev, Nefedieva, 2005: 177; 2006: 98; 2007a: 139; 2007b: 161; 2007c: 99; 2008: 62; 2011: 100; 2012a: 47; 2012b: 51; 2013: 87; 2017: 294; Mikhaljova *et al*., 2008: 51; Nefedieva, Nefediev, 2008: 123; Nefedieva *et al*., 2014: 65; 2015: 148.

MATERIAL EXAMINED. 2 ♀♀, 3 juv., 1 fragm., Russia, **Tomsk Area**, Tomsk District, near Zorkaltsevo, 56.521326°N, 84. 733903°E, *Pinus sibirica* forest, p.t., 13–26.VI.2001; 4 ♀♀, s.l., p.t., 26.VI.–7.VII.2001; 2 ♂♂, 6 ♀♀, 3 fragm., s.l., p.t., 7–24.VII.2001; 4 juv., s.l., soil samples, 24.VII. 2001; 7 ♂♂, 26 ♀♀, 8 fragm., s.l., p.t., 24.VII.–8.VIII.2001; 8 ♂♂, 20 ♀♀, 3 fragm., s.l., p.t., 8–24.VIII.2001; 1 ♂, 1 juv., s.l., soil samples, 24.VIII.2001; 23 ♂♂, 33 ♀♀, 4 juv., 2 fragm., s.l., p.t., 24.VIII.–20.IX.2001; 1 juv., s.l., 16.X.2001; 8 juv., same Area and District, near Kislovka, 56.430654°N, 84.900971°E, *Populus tremula* forest, soil samples, 10–11.VI.2001; 3 juv., s.l., p.t., 10–26.VI.2001; 2 fragm., s.l., p.t., 8–26.VII.2001; 1 ♂, 1 ♀, 3 juv., s.l., soil samples, 18–22.VII.2001; 5 ♂♂, 20 ♀♀, 2 juv., s.l., p.t., 26.VII.–6.VIII.2001; 13 ♂♂, 36 ♀♀, 1 juv., 3 fragm., s.l., p.t., 6–26.VIII.2001; 40 ♂♂, 159 ♀♀, 4 juv., s.l., p.t., 26.VIII.–18.IX.2001; 2 ♂♂, 4 ♀♀, 10 juv., 2 fragm., s.l., soil samples, 9.X.2001; 1 juv., same Area and District, near Petrovskii Uchastok, 56.512449°N, 84.789453°E, *Populus tremula* and *Betula pendula* patch, soil samples, 20–26.VI.2001; 1 ♂, 2 ♀♀, 10 juv., s.l., soil samples, 8–10.VII.2001; 10 ♀♀, s.l., p.t., 8–24.VIII. 2001; 26 ♂♂, 22 ♀♀, s.l., p.t., 24.VIII.–20.IX.2001; 7 juv., 1 fragm., s.l., 16.X.2001; 1 fragm., same Area and District, near Timiryzevskoye, 56.480920°N, 84.872666°E, *Betula pendula* forest, p.t., 3–14.VI.2001; 2 ♀♀, s.l., p.t., 9–26.VII.2001; 7 ♂♂, 21 ♀♀, 1 juv., s.l., p.t., 26.VII.–6.VIII.2001; 4 ♂♂, 7 ♀♀, s.l., p.t., 6–26.VIII.2001; 1 ♂, 3 ♀♀, near s.l., *Betula pendula* forest and *Pinus sylvestris* forest ecotone, p.t., 6–26.VIII.2001; 10 ♂♂, 19 ♀♀, 1 juv., s.l., p.t., 26.VIII.–18.IX.2001, all leg. P.S. Nefediev, J.S. Nefedieva; 1 ♂, same Area, Krivosheino District, near Novyi Istanbul, 57.418825°N, 83. 878022°E, mixed forest, 21.IX.2003, leg. P.S. Nefediev; 1 ♂, 4 ♀♀, same Area, Tomsk District, near Zorkaltsevo, *Pinus sibirica* forest, 12.VII.–24.VIII.2006, leg. S.A. Krivets; 1 ♂, 2 ♀♀, Russia, **Republic of Altai**, Turochak District, Altai State Nature Reserve, NW of Lake Teletskoye, cordon Baigazan, 51°45′34.9″N, 87°25′ 55.9″E, *Padus avium* forest with *Sorbus sibirica*, 460 m a.s.l., 30.IX.2013; 4 ♂♂, 1 ♀, near s.l., 51° 45′33.7″N, 87°25′ 58.9″E, *Padus avium* forest with *Sorbus sibirica*, ca 470 m a.s.l., 30.IX.2013; 1 ♂, 3 ♀♀, near s.l., 51°45′35.0″N, 87°26′ 02.3″E, *Salix caprea* forest, ca 480 m a.s.l., 30.IX.2013; 2 ♂♂, near s.l., 51°45′32.1″N, 87°25′54.8″E, *Padus avium* forest, ca 455 m a.s.l., 1.X.2013; 1 ♂, 6 ♀♀, near s.l., 51°45′34.1″N, 87° 26′03.6″E, *Padus avium* forest, 490 m a.s.l., 1.X.2013; 1 ♂, near s.l., 51°45′ 35.0″N, 87°25′42.2″E, *Padus avium* forest, ca 470 m a.s.l., 3.X.2013; 2 ♂♂, 1 ♀, near s.l., 51°45′31.6″N, 87°25′ 39.1″E, *Padus avium*, *Salix caprea* and *Betula pendula* forest, ca 450 m a.s.l., 3.X.2013, all leg. M.B. Sakhnevich; 1 ♂, 1 ♀, Russia, **Altai Province**, Zmeinogorsk District, 3 km N of Zmeinogorsk, 51. 207239°N, 82.170883°E, meadow, 400 m a.s.l., 29.VI.2016, leg.

Fig. 3. Distribution of *Altajosoma* species: *corniferum* Mikhaljova, Nefediev et Nefedieva, 2008 (square) and *deplanatum* (Stuxberg, 1876) (circle). Previously known localities marked in black, new records given in white.

Рис. 3. Распространение видов *Altajosoma*: *corniferum* Mikhaljova, Nefediev et Nefedieva, 2008 (квадрат) и *deplanatum* (Stuxberg, 1876) (круг). Черным отмечены ранее известные места находок, новые находки отмечены белым.

Yu.V. Dyachkov; 1 ♂, Russia, **Kemerovo Area**, Krapivinskii District, 5–6 km of Taradanovo, 54°44′N, 86°41′E, *Populus tremula* forest, 300 m a.s.l., in litter and rotten logs, 13.VIII.2017; 1 ♂, 1 ♀, same Area, Izhmorskii District, near Simbirka, 56°02′N, 87°10′E, *Pinus sylvestris* forest, 175 m a.s.l., in litter, 18.08.2018, all leg. D.A. Efimov.

DISTRIBUTION. This species is rather widespread in SW Siberia: S districts of the Tomsk Area, the Kemerovo Area as a whole, NW districts of the Republic of Khakassia, E districts of the Novosibirsk Area, N and S districts of the Altai Province, N and central districts of the Republic of Altai (Fig. 3).

REMARKS. The above new records show the NW and SW range limits of the species' distribution. An examination of males of the species from the collection of ASU has revealed a small anterior process (**ap**) on each angiocoxite of the posterior gonopods. This character is well visible both in fig. 32 of the redescription (see Shear [1990]) and a SEM micrograph (Figs 4, 5), but it was specified neither in that redescription nor later (see Mikhaljova [2017]). Hence, this structure must be included into the description of *A. deplanatum*.

Altajosoma katunicum Mikhaljova, 2000
Fig. 1.

Altajosoma katunicum Mikhaljova, 2000: 161, 162: figs.

Altajosoma katunicum — Mikhaljova, Golovatch, 2001: 108; Mikhaljova, 2004: 176, 177: figs, 112: map; Nefediev, Nefedieva, 2007b: 162; 2008: 62.

non *Altajosoma katunicum* — Mikhaljova *et al*., 2008: 52; Nefedieva, Nefediev, 2008: 123; Nefediev, Nefedieva, 2013: 87; Nefedieva *et al*., 2014: 65; 2015: 149.

MATERIAL EXAMINED. 1 ♂, Russia, **Republic of Altai**, Ust-Koksa District, 25 air-km SE of Multa, valley of Multa River, 49°56′45.88″N, 85°51′05.09″E, *Pinus sibirica* and *Larix sibirica* forest, 1700 m a.s.l., 18.VIII.2016; 1 ♂, 1 ♀, same Republic and District, 7 air-km SE of Multa, valley of Multa River, 50°06′03.63″N, 85°54′45.56″E, *Pinus sibirica* and *Betula pendula* forest, 1200 m a.s.l., 23.VIII.2016, all leg. Yu.V. Dyachkov.

DISTRIBUTION. The distribution area of this species is restricted by the Katunskii Mt. Range in the Ust-Koksa District, Republic of Altai (Fig. 1).

REMARKS. The records of *A. katunicum* in the Altai State Nature Reserve, Ulagan District, Republic of Altai (see Mikhaljova *et al*. [2008]) turned out to be misidentifications, as all of them actually belong to *A. baltyrgan* and *A. kemerovo*.

Altajosoma kemerovo (Shear, 1990)
Fig. 2.

Diplomaragna kemerovo Shear, 1990: 21, 20: figs.

Diplomaragna kemerovo — Mikhaljova, 1993: 25; Nefediev, Nefedieva, 2008a: 117.

Altajosoma kemerovo — Mikhaljova, 2000: 161; 2004: 180, figs, 173: map; 2013: 7; Mikhaljova, Golovatch, 2001: 108; Vorobiova *et al*., 2002: 60; Mikhaljova, Nefediev, 2003: 86; Nefediev, Nefedieva, 2006: 98; 2007a: 139; 2007b: 161; 2008: 62; 2013: 87; Nefedieva, Nefediev, 2008: 123; Mikhaljova *et al*., 2008: 52; Nefedieva *et al*., 2014: 65; 2015: 149.

Altajosoma katunicum pro parte — Mikhaljova *et al*., 2008: 52; Nefedieva, Nefediev, 2008: 123; Nefediev, Nefedieva, 2013: 87; Nefedieva *et al*., 2014: 65; 2015: 149.

NEW MATERIAL EXAMINED. 1 ♂, 2 ♀♀, Russia, **Republic of Altai**, Turochak District, Altai State Nature Reserve, NW of Lake Teletskoye, cordon Baigazan, 51°45′32.7″N, 87°26′05.8″E, *Padus avium* and *Betula pendula* forest, ca 480 m a.s.l., 1.X.2013; 1 ♂, near s.l., 51°45′35.0″N, 87°25′42.2″E, *Padus avium* forest, ca 470 m a.s.l., 3.X.2013, all leg. M.B. Sakhnevich.

MATERIAL RE-EXAMINED (specimens previously identified as *A. katunicum* and published by Mikhaljova *et al*. [2008]). 1 ♂, Russia, **Republic of Altai**, Ulagan District, Altai State Nature Reserve, S of Lake Teletskoye, cordon Chiri, mouth of Chiri River, 51.363121°N, 87.835473°E, *Betula pendula* forest, 465 m a.s.l., 11–12.VIII.2005; 1 ♂, same Republic, same District, Altai State Nature Reserve, S of Lake Teletskoye, near cordon Chiri, watershed of Kyga River and Bayas River, Kyga Biocenoses Profile, Site 1, 51°20′47.3″N, 87°51′14.2″E, *Pinus sylvestris* and *Betula pendula* forest, ca 445 m a.s.l., 12.VIII.2005, all leg. P.S. Nefediev, J.S. Nefedieva.

DISTRIBUTION. This species is rather widespread in SW and central Siberia: W districts of the Kemerovo Area, E districts of the Novosibirsk Area, W districts of the Republic of Khakassia, N districts of the Republic of Altai, as well as S districts of the Krasnoyarsk Province down the Yenisei River to 60°26′N (Fig. 2).

REMARKS. A restudy of two ♂♂ from near cordon Chiri in the environs of Lake Teletskoye, both previously identified as *A. katunicum* by Mikhaljova *et al*. [2008], shows that they actually belong to *A. kemerovo*.

Conclusions

A re-examination of the type material of both subspecies of *Altajosoma bakurovi* (Shear, 1990) shows that: (1) *A. bakurovi* has no subspecific taxa and its full species status is revalidated; (2) the subspecies *A. b. longiprocessum* Mikhaljova, 2000 is elevated to a full species rank.

New records refine the distributions of seven *Altajosoma* species. *Altajosoma bakurovi* (Shear, 1990) is new to the Republic of Khakassia. Two species are recorded from outside their type localities for the first time: *A. baltyrgan* Mikhaljova, 2013 is found in the environs of Lake Teletskoye, while *A. corniferum* Mikhaljova, Nefediev et Nefedieva, 2008 is reported from the Altai Province. The NW and SW range limits of *A. deplanatum* (Stuxberg, 1876) are expanded, as opposed to *A. katunicum* Mikhaljova, 2000, which distribution area is reduced to the Katunskii Mt. Range. The presence of a small anterior process (**ap**) on each angiocoxite of the posterior gonopods of *A. deplanatum* must supplement the description of that species, as well as the diagnosis of the genus in general, i.e. anterior angiocoxal processes of the posterior gonopods are always present.

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